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While in Washington, these students participated in a 3-day academic competition that simulated a congressional hearing in which they "testified" before a panel of judges. Students demonstrated their knowledge and understanding of constitutional principles and had opportunities to evaluate, take, and defend positions on relevant historical and contemporary issues.

I wish these students the best of luck in their future endeavors and applaud their outstanding achievement.●

#### COMMENORATING THE 40TH ANNIVERSARY OF MOORE'S LAW

● Mr. BINGAMAN. Mr. President, 40 years ago in the April 1965 issue of *Electronics* magazine, Gordon Moore, a young engineer, accurately forecast years of exponential improvements in computer chip performance. His abstract observations led to the most concrete results.

In his article entitled, "Cramming More Components onto Integrated Circuits," Moore first articulated his thinking on the future of the integrated circuit. Later, he theorized that the number of transistors on a computer chip would continue to double in power for the same price every 18 months. This postulation became popularly known as Moore's Law, and it was a stunning challenge for scientists and engineers to discover new phenomena and ideas to maintain America's technological momentum.

Shortly thereafter, Gordon Moore helped found the Intel Corporation, which started as a pioneer in cutting-edge semiconductor technology and today remains at the frontier of innovation in integrated circuits. Since that time, all in accordance with Moore's Law, there have been more than three dozen such doublings in computer chip performance.

No wonder that we marvel how our world has changed more in the past century than in the previous hundred centuries. It took 10,000 years to get from the dawn of civilization to the airplane, but just 66 years to get from powered flight to the moon landing. In 1971, Intel could fit 2300 transistors on a silicon chip; later this year, Intel is expected to unveil a chip with nearly 2 billion transistors.

"It's kind of a Biblical thing," Leon Lederman, the Nobel laureate, once noted, "Science begets technology. Once we have transistors, we can make computers. When we have computers, we can make much better transistors

... which can make better computers."

In the years ahead, networked supercomputers operating at speeds of over one thousand trillion operations per second will have implications as profound as the Industrial Revolution's spread of technology.

Such technological innovation, predicted by Moore's Law, has led to advances in virtually every industry and has fundamentally impacted the way we live, work, and play. Information technology has become commonplace in our schools, libraries, homes, offices, and businesses—and new information technology applications are still developing rapidly.

Information technology has had a mutually reinforcing relationship with our "golden age" of science and engineering. Advances in supercomputers, simulations, and networks are creating a new window into the natural world—making computing as valuable for theory and experimentation as a tool for scientific discovery.

It has accelerated the pace of scientific discovery across the board in all scientific disciplines. Information visualization and simulation technologies make it possible to learn, explore, and communicate more complex concepts. Supercomputer technology, for example, allows researchers to develop life-saving drugs more rapidly, better understand the functions of our genes once they have been sequenced, or more accurately predict tornadoes. Advanced information technology tools have emerged to support "collaboratories"—geographically separate research units on different sides of the world functioning as a single laboratory.

Perhaps the most important area where information technology's impact has been greatest is in our economic sector. It is commonly credited as being a key factor in our economy's structural shift from manufacturing to services, altering the nature of our work and the needs of our workforce.

The widespread diffusion of information technology throughout the economy, and its integration into new business models producing more efficient production methods added a full percentage point to the Nation's productivity after 1995. Economists note that productivity is the most important driver of long-term economic growth, and information technology increases economic output more than any other type of capital investment.

Beginning in 1995, U.S. productivity—spurred by information technology applications—accelerated to rates of growth not seen in two decades. The difference between 1.5 percent and 2.5 percent productivity growth is the difference between the standard of living doubling in one generation or in two generations. It has enormous implications.

The impact of Moore's Law and the resulting U.S. technology industry has also had enormous implications for my home State of New Mexico.

We are proud to be part of the drive within the technology industry to keep pace with Moore's Law. Small and large businesses alike which are part of our local technology industry have led to steadily increasing economic growth and development. Intel Corporation, with Gordon Moore at its helm, has become a major contributor to our State's economy and is an example of the impact that U.S. technological leadership has at a local level.

Overall, Intel has a significant economic and fiscal impact on our State and region. Intel came to Rio Rancho, just outside of Albuquerque, in 1980 and has grown to become our State's largest private manufacturer. Intel New Mexico employs more than 5,000 people and pays some of the highest wages. In 2001–2002, Intel spent \$2 billion on new facilities and upgrades to other facilities.

Moreover, Intel's continued growth has brought other benefits to our communities as well, particularly in the area of education. Intel made a \$2 million donation to the National Hispanic Cultural Center to integrate the latest technology tools in support of the Intel Center for Technology and the Visual Arts. Intel's "Teach to the Future" has provided technology training for more than 6,000 New Mexico teachers to help them incorporate technology into their curricula and help prepare our children for the jobs of the 21st century. Intel has also launched two Computer Clubhouses, technology and mentoring programs for youth in Albuquerque and Santa Fe.

While Moore's Law has meant so much to my State and our Nation, we need to acknowledge that engineering, computer chips, and information technology are about more than our material wealth or our simple acquisition of knowledge. Basically, they are about our dreams.

We have always been a Nation that is defined by the great goals we set, the great dreams we dream. We have always been a restless, questing people—and with willpower, resources, and great national effort, we have always reached our horizons and then set out for new ones.

So on this 40th anniversary of Moore's Law, I want to salute the extraordinarily important contributions of Gordon Moore, the Intel Corporation, and the many other scientists and engineers who have helped us imagine and invent the future.

In large measure, their contributions have made this new century before us so full of promise—molded by science, shaped by technology, and powered by knowledge. These potent transforming forces can give us lives richer and fuller than we have ever known before.●

#### MESSAGES FROM THE PRESIDENT

Messages from the President of the United States were communicated to the Senate by Ms. Evans, one of his secretaries.